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COMPUTERS IN DAILY LIFE

CANADIANS' BEHAVIOR AND ATTITUDES REGARDING COMPUTER TECHNOLOGY

by

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ABSTRACT

The CROP survey[1] carried out in spring 1987 on Canadians' behavior and attitudes regarding computers[2] showed, first of all, that approximately three out of ten Canadians today use computers in some activity. While computers are used mainly at work (17%), 10% of Canadians also make use of them at home.

The survey showed that computer users are fairly young (15-34), well educated (14 years or more of schooling), and belong to high-income households ($35,000 and over). It also appears that the use of computers increases steadily from east to west in Canada. We should add that four out of ten people have been using computers for more than three years and that about half feel that courses and training are the best way to learn how to operate them.

In general, users display little fear, hesitation or distrust where computers are concerned. We found that non-users have more reservations and a more negative attitude, and they are more likely to view computers as impersonal tools. On the whole, however, most respondents agree that computers are special work tools.

It is interesting to note, incidentally, that men and women have adopted computers at a similar pace. Although women use a microcomputer at home less frequently, are less fascinated by it and feel more insecure towards it, more women than men consider that they found it easy to learn to use computers (very easy: 31%, as opposed to 23% of men).

Almost two people out of ten (17%) in the labor force use computers, particularly in data processing and database management tasks. Users are highly satisfied, and the great majority of them seem to have found it easy to learn how to use this work tool. In fact, users' attitudes toward the computer and its impact on individual relationships and the quality of work done are quite positive. We noted a difference in the opinions of labor force participants, depending on whether or not they use computers.

The same trend is to be found among people in general, that is most of those surveyed have a very favorable opinion, and prejudices and negative views of

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1. See the Appendix for details on the method used.
2. Computers refers here to the use of the computer in one form or another (micro-computer, word processors and terminals).

the impact of computers on the workplace are fairly rare. Most Canadians also have the impression that the ability to use computers will soon be a prerequisite for professional success, and appear to be fully aware that today's workplace has been considerably changed by computers. Once again, these attitudes are found primarily among computer users, rather than among those who have not had the opportunity to learn about computer technology. This phenomenon can doubtless be explained by the automatic distrust of the unknown, but also by the fact that non-users generally belong to the less privileged classes of the social mosaic.

Most people who have a computer at home were induced to use it through personal interest. It should be noted, however, that one third of those surveyed said that they rarely or never used the computer they have at home. Those who do use their home computers do so principally for work or entertainment, and most of their time on it is devoted to word processing. On the whole, the level of satisfaction among home computer users is high. It is interesting to note that this group also shows more interest in other new technologies, such as videocassette recorders and automatic bank tellers. This interest is understandable, of course, in that such people belong to a more privileged and better-educated class.

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INTRODUCTION

Our primary goal in conducting this study on the behavior and attitudes of Canadians regarding to computer technology was to obtain a general portrait of computer users, both in the workplace and at home.

It seemed to us that computers had sufficiently penetrated daily life, both in the workplace and at home, for us to be able to study the relationship between people and computers and their view of this technology. We felt that it was time to address the human dimensions of the use of computers.

We also wished to determine whether there was some parallel between the use of computers at work and at home, in particular by comparing the characteristics of the two kinds of users. We should note here that the use of computers goes beyond simple technology since it affects social behavior and lifestyles in various ways.

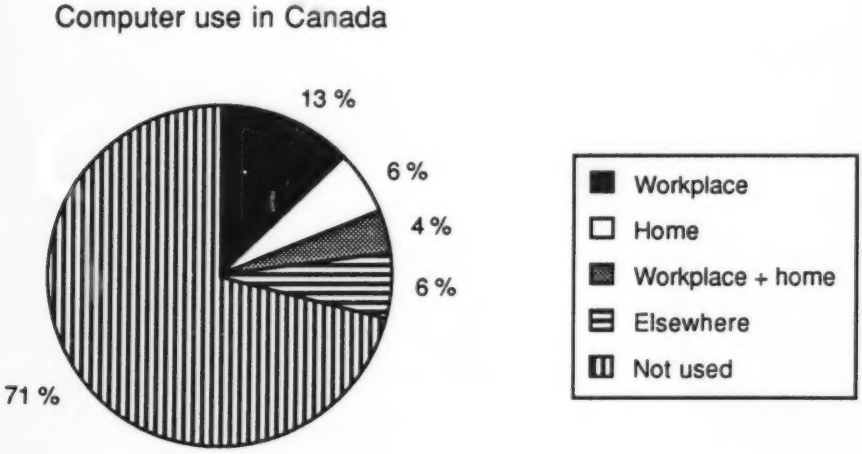
This report presents certain facets of this analysis that we hope will contribute to our understanding of the likely socio-cultural impact on a society that is becoming more technology-oriented, or as it is now commonly called, the "information society."

1. USE OF COMPUTERS

1.1 User profile

The growing proliferation of computers is illustrated by the fact that in 1987 about three out of ten Canadians used a computer in their work and home activities.[1] As Figure 1 shows, the use of computers is more widespread at work than at home; 17% of Canadians use them as part of their job (13% use them only at work and 4% use them both at home and at work), while a total of 10% make use of computers at home (including 6% who spend time on them at home only). Furthermore, 6% of Canadians use computers elsewhere than at work or at home. The latter are likely to be students for the most part who have to interact with computers as part of their studies or specialized training.

Figure 1



Source: CROP-3SC. Socio-cultural analysis of Canadians' behaviour and attitudes to computer technology, Montreal, 1987. Question 59c.

1. It should be pointed out here that this study gives a conservative evaluation of the use of computers, since computers are defined as excluding video games and automatic bank tellers.

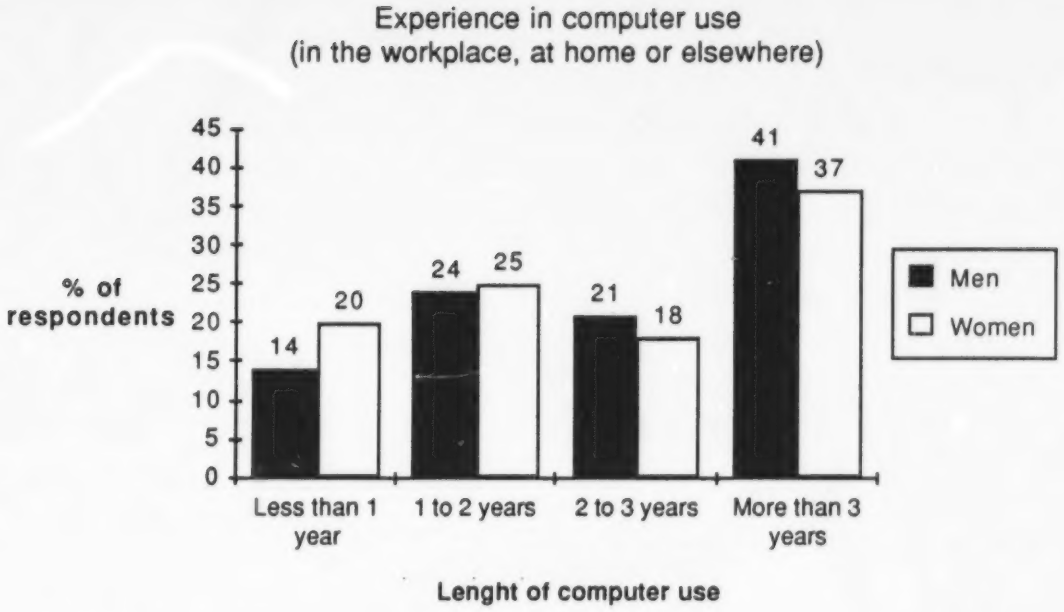
The basic characteristics of the computer user are clearly set out in this study, and are hardly surprising. As expected, the greatest users are well educated (14 or more years of schooling), in a high income bracket ($35,000 and over), and hold positions as managers or professionals. In fact, almost half (49%) of the people with more than 13 years of schooling use computers, while 61% of managers and professionals do. At the other end of the scale, Canadians with few years of schooling or with lower incomes make little use of computers: only 8% of those with six or fewer years of schooling and 13% of people with incomes of less than $15,000 make use of computers at home, at work or in other aspects of their daily lives, which is considerably less than the nation-wide percentage of 29%.

In terms of age, younger Canadians (15-24 age group) were found to be the greatest users (47%) of computers, doubtless a result of efforts on the part of many educational institutions to give students access to computer equipment. As for the 25-34 and the 35-44 age groups, 35% of them say that they use a computer, compared with 19% among people aged 45-59. A small proportion (5%) of Canadians aged 60 and over make use of computers.

Despite these substantial fluctuations in rates of use depending on age, income, schooling and professional status, the percentages of male and female users are almost identical. It is interesting to note that the Atlantic Provinces have the lowest proportion of users (18%), closely followed by Quebec (24%). Ontario (31%) and the western provinces (35%) have almost identical proportions.

Almost four out of ten users (39%) have been using computers for more than three years. This proportion increases with age (up to 59), schooling and income. The use of computers appeared at a similar rhythm among men and women (see Figure 2). The proportion of people who have been using computers for more than three years is also higher in the western provinces and Ontario (47% and 38%, compared with 30% and 31% in Quebec and the Maritimes), with a considerable difference between Anglophones (42%) and Francophones (28%).

Figure 2

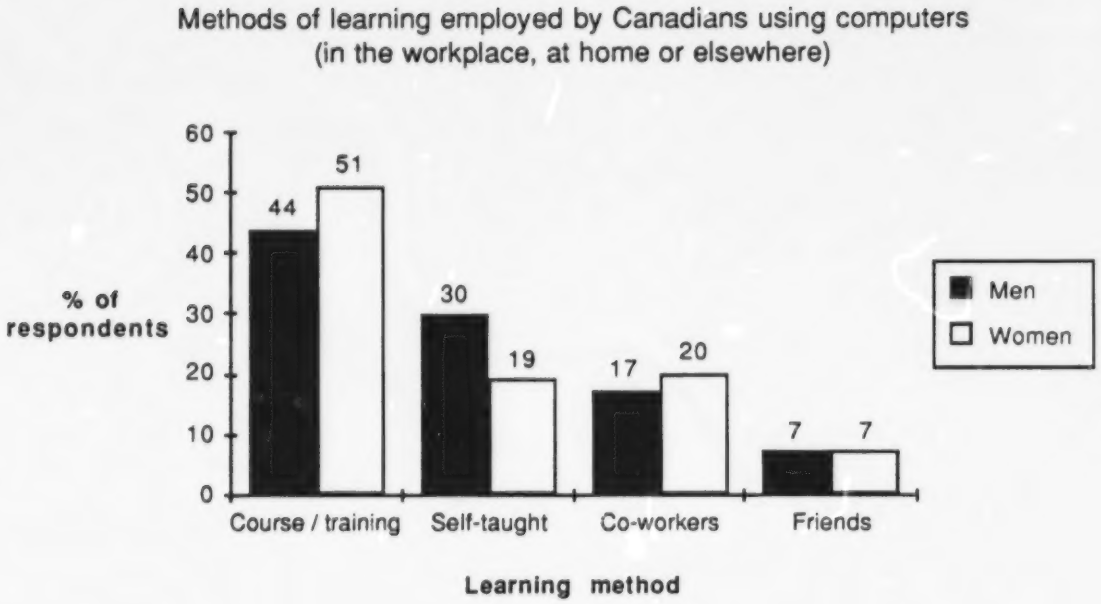


Source: CROP-3SC. Op. cit. Question 60c.

1.2 Methods of learning

Since 29% of Canadians aged 15 or older state that they used a computer in 1987, one might wonder how they managed to acquire the basic principles of operation of hardware and software. The survey shows that courses and training remain the most common and most preferred means of learning. In fact, almost half (47%) of the users learned how to operate computers through courses or training, while 25% taught themselves and 18% were shown by co-workers (see Figure 3).

Figure 3



Source: CROP-3SC. Op. cit. Question 61c.

Slightly more women (51%) than men (44%), and more Ontarians (52%), rely on courses and training. In addition, according to six out of ten users, this is the best means of learning. This preference is more prevalent among women (66%, compared with 58% among men), and increases as one moves westward (56% in the Atlantic, 57% in Quebec, 62% in Ontario and 66% in the western provinces). Moreover, almost one user out of five (18%) feels that on-the-job training is the best way to learn how to use a computer.

Another highly popular approach to learning is to teach oneself. This was the method used by one out of four users, and is more widespread among men (30%) than among women (19%). When respondents were asked for their opinion on the best means of learning, however, only one out of ten selected this approach, which could be an indication of its shortcomings. Almost twice as many men (13%) as women (7%) prefer this method, and Francophones (14%) are more in favor of it than Anglophones (9%). This preference becomes less and less marked, however, as income rises.

Another group of users (18%) were shown how to use a computer by co-workers. This is a more common method among Anglophones than among Francophones (20%, as opposed to 14%), and very popular in the Atlantic provinces (23%). It is less valued, however, by managers and professionals (11%).

Finally, a very low percentage (7%) of users were taught by friends, a method somewhat more popular among those in the 15-24 age group (10%). Only 6% of users feel that this is the best way to learn.

1.3 Users' attitudes

When we look at the attitudes of computer users, it can be seen, firstly, that most of them, that is nearly 80%, have a marked degree of confidence in their abilities: 77% of them feel only slightly or not at all lost or inept in front of a computer; 80% have very little or no fear of putting the computer out of order; and 88% are not very or not at all afraid of appearing ridiculous by asking questions. These overall results are slightly qualified when home users are compared with those who use computers at work. The latter appear to be particularly comfortable with computers, doubtless as a direct result of greater familiarity and more extensive training.

Most computer users (80%), far from being anxious, like exploring new uses and applications; moreover, the great majority of them (86%) say that they are interested in applications other than just video games. All in all, 75% of users say that they are proud to be able to use a computer, and 80% of them do not find it impersonal to work with.

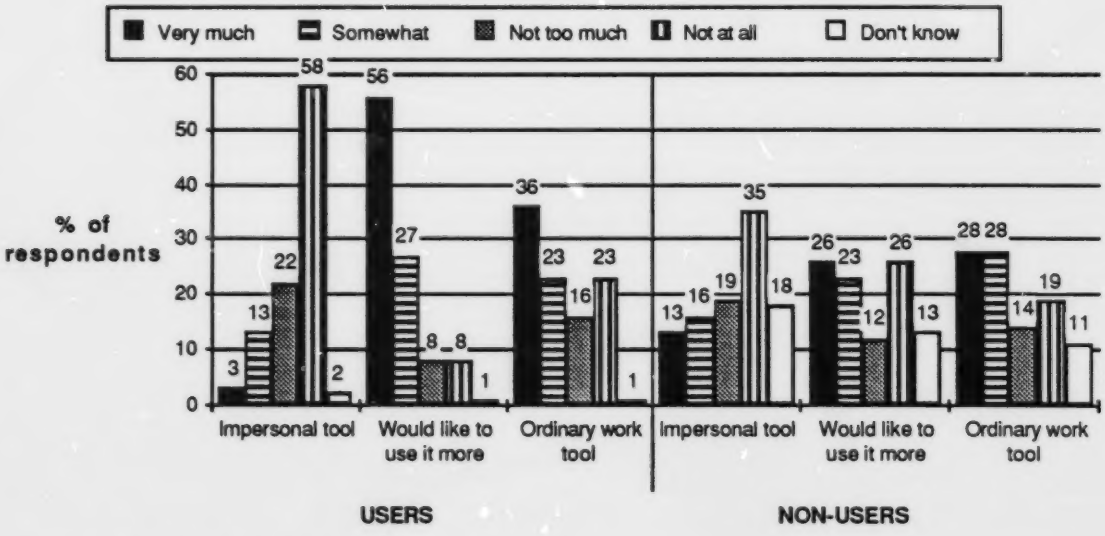
As for general enthusiasm regarding computers, the percentage of people who "very much" or "somewhat" like using them is important (74%); people who use a computer at work are less enthusiastic (71% say that they like using computers) than those who use them at home or elsewhere. It is possible that unfavorable conditions for their use in the workplace may influence this opinion.

1.4 Views of users and non-users

Figure 4 illustrates the data concerning three attitudes among users, and offers an interesting comparison with those who have had no experience on computers. First of all, regarding feelings that the computer is an impersonal tool, we have already noted that 80% of users do not feel that this is true (22% not too much and 58% not at all). Among non-users, however, this percentage falls to 53% (19% not too much and 35% not at all), whereas the proportion of non-users who feel that the computer is indeed a rather impersonal tool stands at 29% (compared with only 18% of users).

Figure 4

Comparison of attitudes toward computers among users and non-users in the general public



Source: CROP-3SC. Op. cit. Question 68c.

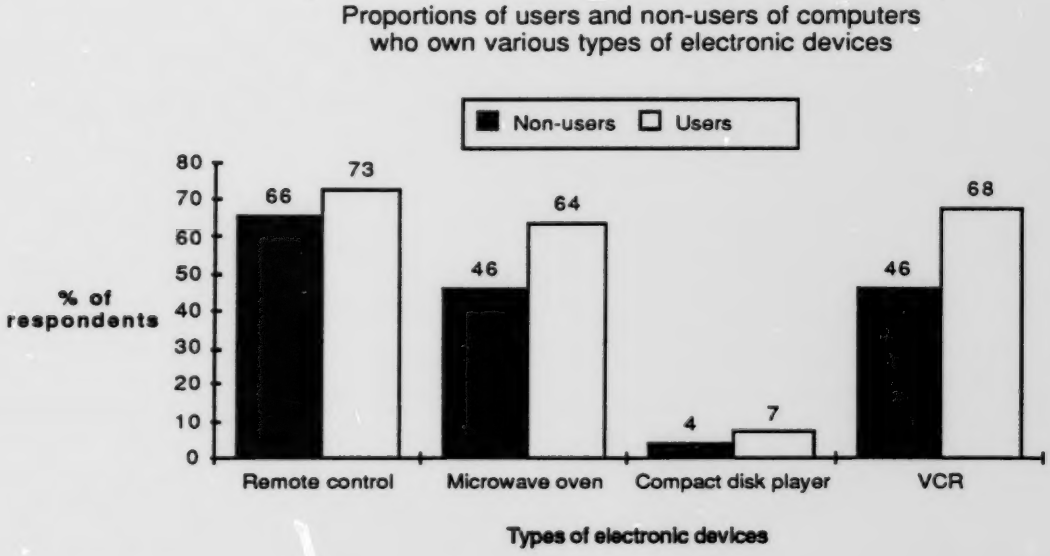
This difference in views may help to explain the wide gap between users and non-users regarding their desire to increase their knowledge of computers; while 83% of those who are already familiar with their use would like (56% very much and 27% somewhat) to find other applications for computers, only 49% of non-users express

the same wish (26% very much and somewhat 23%). This desire to learn more is directly proportional to the respondent's degree of familiarity with computers.

One last interesting parallel can be drawn between users and non-users, regarding the "ordinariness" of computers as work tools. It is surprising to find that both groups have almost the same view on this question: 59% of people with experience in using computers feel that the computer is a piece of equipment like any other, while 39% consider that it is a special tool. Among non-users, almost the same proportions prevail: 56% of them feel that computers are ordinary tools, whereas 33% see them as "special." We should note that this agreement between the two groups is fairly surprising, since up to this point, their attitudes toward computers have failed to agree.

Differences between users and non-users are not restricted to attitudes, however. Some of their consumer habits also vary considerably. Thus, as Figure 5 suggests, computer users are generally more inclined than non-users to acquire other new technologies such as VCRs, microwave ovens and remote-control devices (VCRs: 68% versus 46%; microwave ovens: 64% versus 46%; remote-control devices: 73% versus 66%).

Figure 5



Source: CROP-3SC. Op. cit. Question 64c.

Another indication of the different lifestyles of the two groups lies in the fact that users appear to be much greater patrons of automatic bank tellers than are non-users: 18% of non-users regularly visit automatic tellers, and 64% never do, whereas 41% of users frequently do their banking in this way, and 43% never do. A receptive attitude to new home and banking technology thus appears to be more of a characteristic of those who are already familiar with computers. In the medium term, increasingly varied opportunities to make use of computers should help to de-mystify them and so promote greater use among Canadians as a whole.

2. COMPUTERS AT WORK

2.1 Use of computers at work

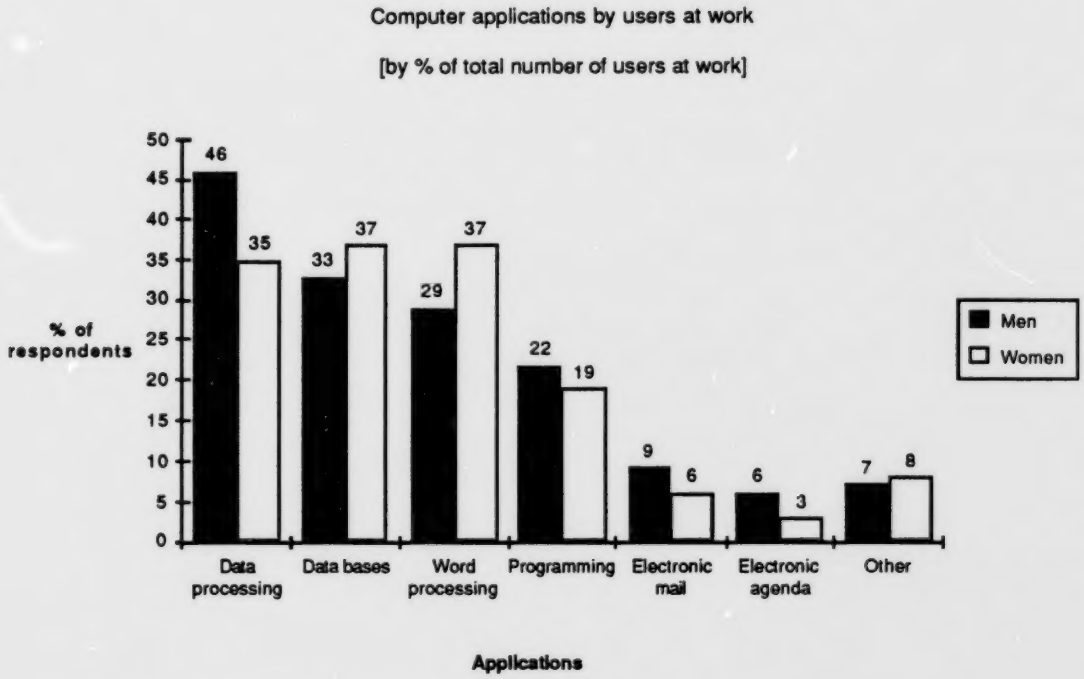
We will now look at the attitudes and reactions toward computers of people at work and also job-seekers, which will give us a better picture of the effects of the introduction of computer technology in the workplace. We will study data from the sub-groups of users and non-users, as familiarity with computers may represent an influential factor for changing opinions regarding computers in the workplace.

In general terms, we should first remember that a total of 17% of Canadians use computers as part of their work. Those with many years of schooling (14 or more years: 24%) and from high-income households ($35,000 and over: 20%, $25,000 to $35,000: 14%) make more use of computers at work only. Anglophones (15%) use computers more in their work than do Francophones (10%), and it appears that this new technology plays a larger role as one proceeds westward (in Quebec and the Atlantic: 10%; in Ontario and the West: 15%).

Looking at the labor force alone, it can be seen that in 1987, two out of ten Canadians (21%) were using a microcomputer "occasionally" (10%) or "regularly" (11%) in their work. Once again, use increases with income (less than $15,000: 6%; $35,000 and over: 32%), and with schooling (14 or more years: 38%), even more so in relation to the type of work (managers and professionals: 45%). In this category, slightly more men than women (22%, as compared with 19%) say that they use a computer. Anglophones are also greater users than Francophones (23%, compared with 17%). The proportion of users increases regularly from east to west, in fact (Atlantic: 16%, Quebec: 20%, Ontario: 21% and the West: 23%).

As Figure 6 shows, at work the most common computer applications are data processing (41%), database management (35%), word processing (33%) and programming (21%).

Figure 6



Source: CROP-3SC. Op. cit. Question 75c.

It can be seen that more men than women are involved in data processing (27%, compared with 18%), that it is an increasingly common application with age, and involves mostly technicians (35%), non-unionized workers (25%, as opposed to 18% of unionized workers) and 31% of individuals with higher incomes ($35,000 and over). This application is more likely to be found in the Atlantic (32%) and Quebec (26%) than in the other regions of the country.

Database management, which includes entering data into predetermined structures, appears to be a more widespread activity among those in the $15,000 to $25,000 income bracket (27%), and those with between 7 and 13 years of schooling (22%), among technicians (27%) and unionized workers (28%). It is prevalent particularly in the Atlantic, (23%), Ontario (22%), and among Anglophones (21%, compared with 15% among Francophones).

Word processing is a more common application among women than men (24% versus 16%), in Quebec (24%) and in the West (23%); programming is more

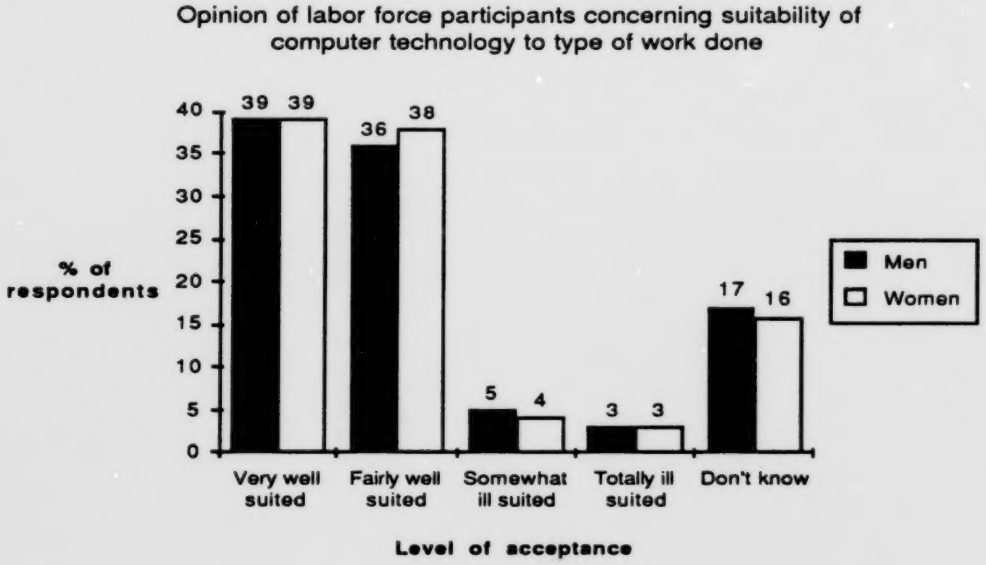
common among Anglophones (12%) than Francophones (8%), in Ontario (13%) and in the West (14%), and particularly among managers and professionals (19%).

Only 8% of Canadians send messages by electronic mail and only 4% of computer users at work plan their activities with electronic agendas.

2.2 Opinions of labor force participants

As Figure 7 shows, 76% of people who use some kind of computer at work, be it a microcomputer, word processor or terminal, find that the technology of their machine is well-suited to their work. This view is prevalent in all age, sex and language groups across the country; however, it becomes stronger with increasing income (from 40% of those $15,000 and less to 90% of those $35,000 and more) and appears, very predictably, to be less common among laborers (46%).

Figure 7

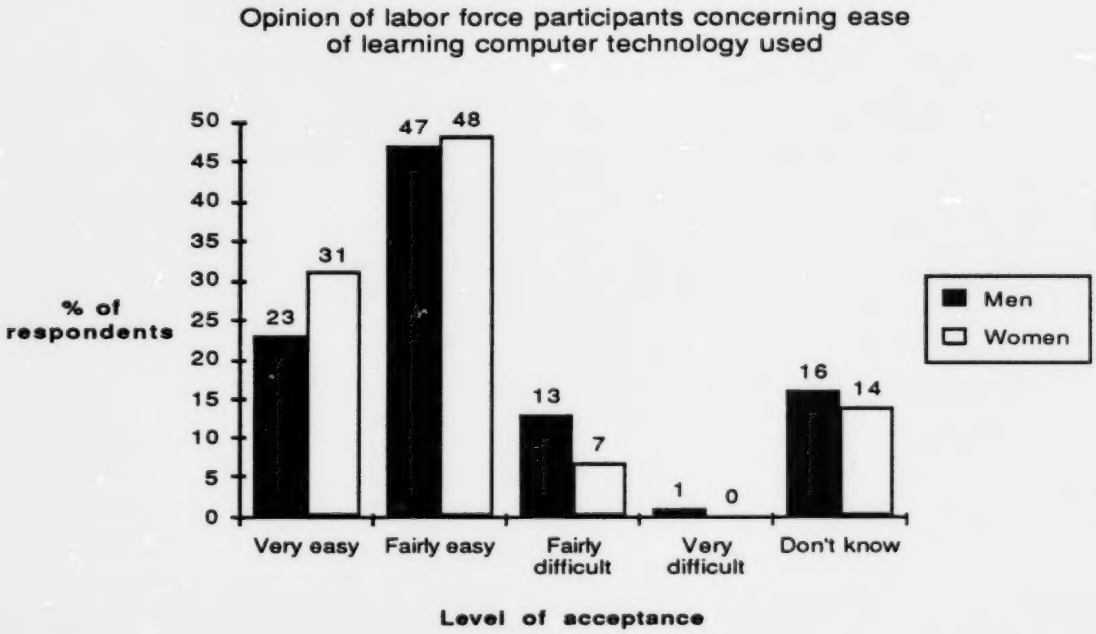


Source: CROP-3SC. Op. cit. Question 73c.

Another indication of satisfaction, personal adaptation to the machine, does not seem to be a problem (Figure 8), as nearly half the respondents indicated that they found it "fairly easy" to learn to use the computer (47%), and more than one out of four found it "very easy" (27%). This view increases with schooling (14 or more

years: 31%) and seems more general among Quebecers (30%). Women (31%) and office, sales and services employees (32%) are more likely to say that they had learned "very easily." A large proportion (20%) of unionized workers, however, say that they found it "fairly difficult" to learn (as opposed to 7% of non-unionized workers).

Figure 8



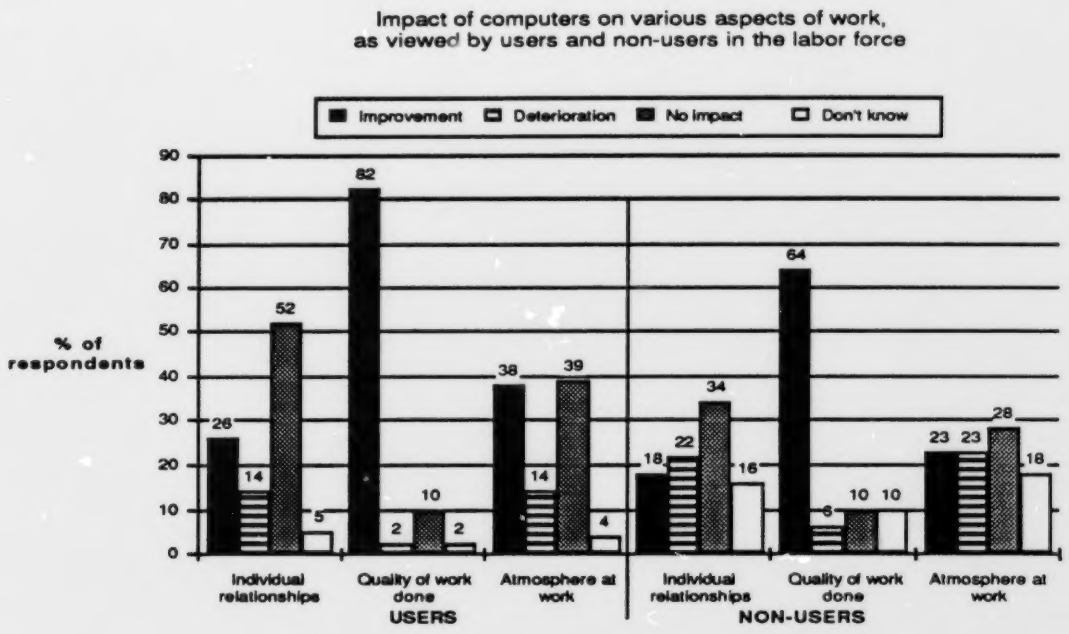
Source: CROP-3SC. Op. cit. Question 74c.

In general, it appears that more than four out of ten users (43%) have no say when software or any other type of computer equipment related to their work is purchased; 13% said that they are "always" consulted, 9% "often," and 15% "occasionally." The amount of input in such decisions ("always" and "often") is higher among men than among women (25%, compared with 19%), and increases with income ($35,000 and over: 27%), schooling (14 or more years: 31%) and depending on professional status (35% among managers and professionals, and 37% among technicians). Anglophones are more likely to be consulted than Francophones (24%, as opposed to 17%), and people in the Atlantic provinces (29%) and the West (27%) are more often consulted than other Canadians.

The views of labor force participants on computers show a general attitude of openness, and there is little rejection or apprehension. Four people out of ten on the labor market, for example, do not feel that computers have any impact on individual relationships; to the contrary, 21% believe that their use improves them. In the end, only 19% of people feel that computers harm individual relationships in the workplace. We also found that this latter attitude is more prevalent among laborers (24%) and low-income earners (25%). At the other end of the scale, professionals (56%), higher-income earners (48%) and people in the 35-44 age group (46%) feel that the introduction of computers has almost no impact on human relations at work.

If the opinions of labor force participants who actually use computers (whether at work, at home or elsewhere) are compared with the views of non-users, it can be seen that the former have a much more positive evaluation of the impact of computers on individual relationships (see Figure 9), since 26% of them feel that work relations improve (as opposed to 18% among non-users) and 52% think that they are not affected (compared with 34% among non-users). Among computer users, 14% consider that human relations deteriorate because of computers, while 22% of non-users feel that this is so. Overall, hands-on experience with computers thus appears to reduce fears and expectations of adverse effects of this technology on human relations.

Figure 9



Source: CROP-3SC. Op. cit. Question 71c.

The same applies to the issue of the computer's impact on work quality. In general, seven out of ten people (71%) feel that the use of computers has beneficial effects on the quality of work done. The frequency of this view increases with income (less than $15,000: 57%; $35,000 and over: 78%), schooling (14 or more years: 81%) and depending on professional status (managers and professionals: 80%). If we compare the opinions of users with those of non-users (see Figure 9), it can be seen, once again, that users have a more favorable attitude, as 82% of them consider that computers improve the quality of work done, as opposed to only 64% of non-users. In fact, the gap between these two groups is largely explained by the large proportion of non-users who have no opinion on the matter (19%). In practice, it appears that contact with computers gives one a better idea of the advantages in terms of improved work quality, benefits that those who have no experience with computers simply do not know about.

As for the impact of computers on the working atmosphere, the attitude of respondents is generally much less positive: 28% feel that the impact on the atmosphere is "positive," 20% that it is "negative," and 32% that there is no effect.

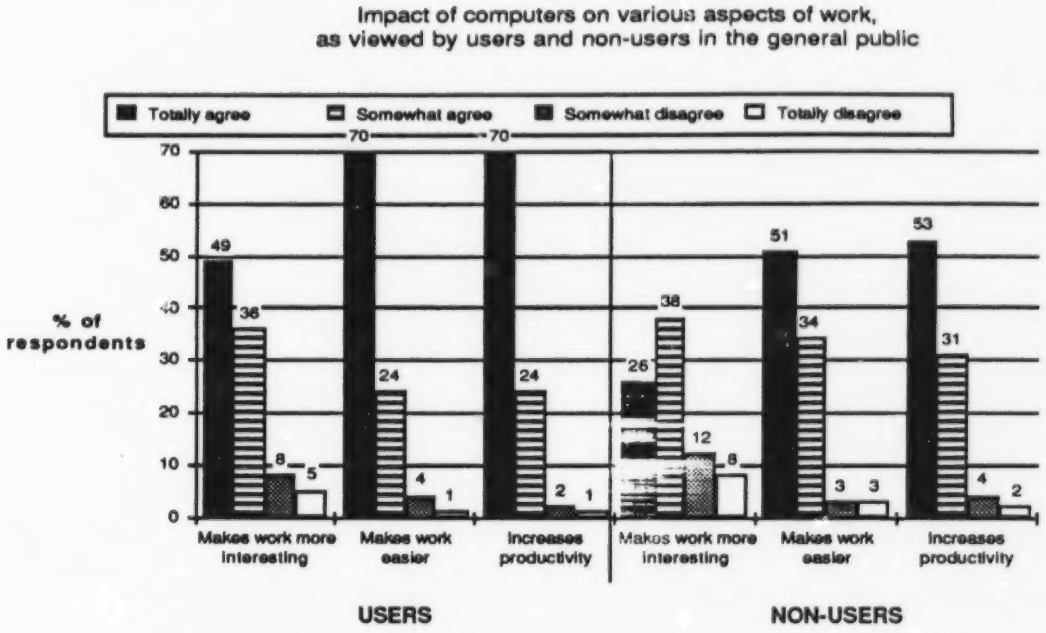
Among people who feel that computers improve the atmosphere at work, this opinion is held less frequently with increasing age (33% of the 15-24 age group, compared with 19% among people aged 60 or over) and schooling (14 or more years: 31%). On the other hand, it is particularly prevalent among technicians (36%), Anglophones (31%, compared with 20% of Francophones) and in the western provinces (35%). The impression that computers result in a deterioration in the working atmosphere is stronger among people with less schooling (less than 7 years: 32%), lower-income earners (less than $15,000: 28%) and in Quebec (24%).

These general results can be qualified, however, if we compare the answers of those who use computers with those who do not. Once again, it can be seen that users tend to have more positive views, since 38% of them feel that computers have beneficial effects on the work atmosphere, whereas only 23% of non-users feel that way. In the latter group, moreover, 23% of those surveyed consider that computers result in a deterioration of the work atmosphere, as opposed to only 14% of users. Finally, 39% of users see no impact by computers on the atmosphere in the workplace, while only 28% of non-users are of that opinion. However, it should be noted that a large proportion of non-users are more undecided regarding these three questions than users (human relations 26% versus 8%, quality of work 19% versus 5%, and atmosphere 27% versus 8%). Once again suggesting that using a computer serves to de-mystify this technology and encourages people to think twice about the prejudices associated with the introduction of computers into the workplace.

2.3 Opinions of people in general

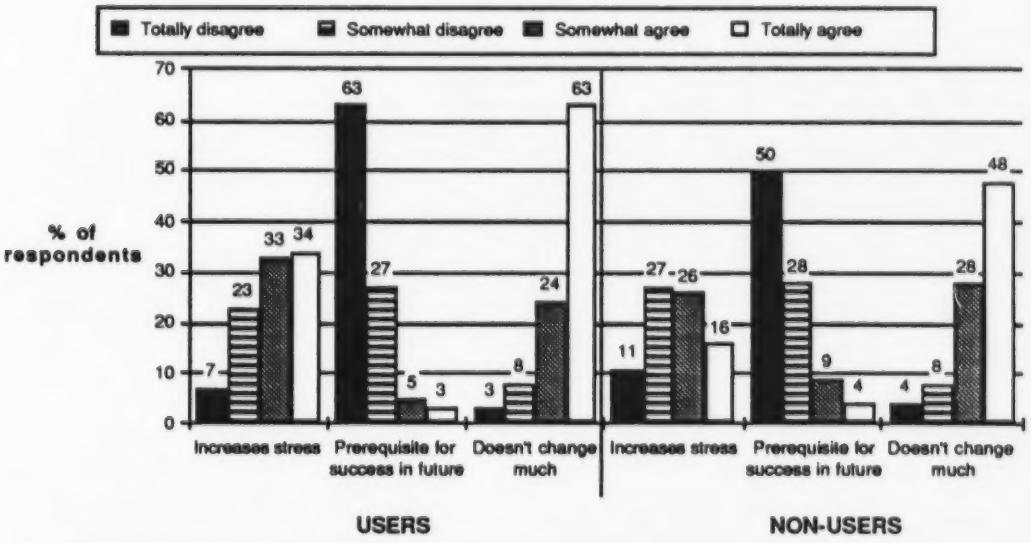
The opinions on the effect of computers in the workplace, which we have just discussed, are those of labor force participants; that is people who have jobs or are seeking employment. In this section, we will complement those data with the opinions of Canadians in general on the introduction of computers into the workplace. Once again, we will examine the attitudes of computer users and non-users separately, as the previous data have clearly shown the major influence of hands-on experience with computers on people's attitudes to this technology. Figures 10 and 11 provide graphic illustrations of the comparative profiles of these two groups.

Figure 10



Source: CROP-3SC. Op. cit. Question 69c.

Figure 11



Source: CROP-3SC. Op. cit. Question 69c.

First of all, it can be seen that Canadians generally have a favorable view of the effects of the use of computers in the workplace. For instance, seven out of ten people agree that the introduction of computers or word processors into the workplace makes work more interesting (33% said that they "totally agree" with that statement). This positive attitude tends to fall off, however, with age (15-24 age group: 79%; age 60 or over: 54%) and appears to be more prevalent among high-income and better-educated groups. More working women (76%) are of this opinion than working men (69%). But it is computer users who massively agree (85%), whether they use it at work, at home or elsewhere (see Figure 10). Non-users, however, are much less likely (64%) to feel that computers make work more interesting. Note, however, that this gap is not due to their disagreement with the question, but rather to the higher proportion of non-users who gave no opinion (15%, as opposed to 2% of users).

Most of the respondents (87%) feel that computers make work easier. This opinion is less frequently held with increasing age (15-24 age group: 92%, and aged 60 and over: 76%) and schooling, but appears to be more prevalent among managers and professionals (94%). Once again (see Figure 10), there is a difference between users (94% agree) and non-users (85% agree), with the latter more undecided rather than actually opposed to the idea that computers make work easier.

The majority of those surveyed (87%) also feel that the introduction of computers in the workplace results in increased productivity, a view that gains favor as years of schooling increase, but loses ground among people in higher age groups (93% among the 15-24 age group, compared to 77% in the 60 and over age group). Predictably, there is the same difference between all groups of users (94% in agreement) and non-users (84% in agreement) (see Figure 10). This is once again the result of indecision rather than disagreement on the part of non-users.

In another field, though almost half of those surveyed (49%) do not feel that the introduction of computers brings about an increase in stress on the job, over one third of respondents (35%) nevertheless consider computers an additional source of stress. This reaction decreases as income rises (less than $15,000: 42%, and $35,000 and over: 32%) and depends on professional status (managers and professionals: 30%; laborers: 37%), and is less common among Francophones

(31%) than among Anglophones (37%). Rather surprisingly, the percentages of users and non-users (see Figure 11) who feel that computers result in some additional stress at work are quite similar: 30% among the users, and 38% among the non-users. Many more users (67%, compared with 42%), however, deny the stressful effects of computers, whereas many non-users are undecided.

Eight out of ten respondents feel that computers in the workplace are a prerequisite for success in the future. Once again, there is little variation among the sub-groups, except where Francophones are concerned (73%), who are less likely to share that opinion than Anglophones (83%). Also, all categories of users are almost unanimous (90%) in agreeing that computers are a prerequisite for success, compared with 78% of non-users who felt that way (see Figure 11).

Finally, it is no surprise to see that most Canadians (79%), and particularly those in the 15-24 age group, disagree with the statement that computers don't bring much change in the workplace. This proportion grows with the number of years of schooling and from east to west. However, almost the same percentages of users and non-users (see Figure 11) agree that computers do indeed produce changes in the workplace (87%, compared with 76%), which matches the two groups' opinions, as we have already seen, on the subject of the impact of computers on stress, productivity, and whether they make work more interesting.

On the basis of this survey and aside from the fairly minor fluctuations between the two groups, it appears, on the wholes that among both users and non-users, negative attitudes towards computers in the workplace are fairly rare, on the whole. Canadians seem to have accepted the computerization of work, feel that it has positive repercussions, and do not experience any particular fears about it.

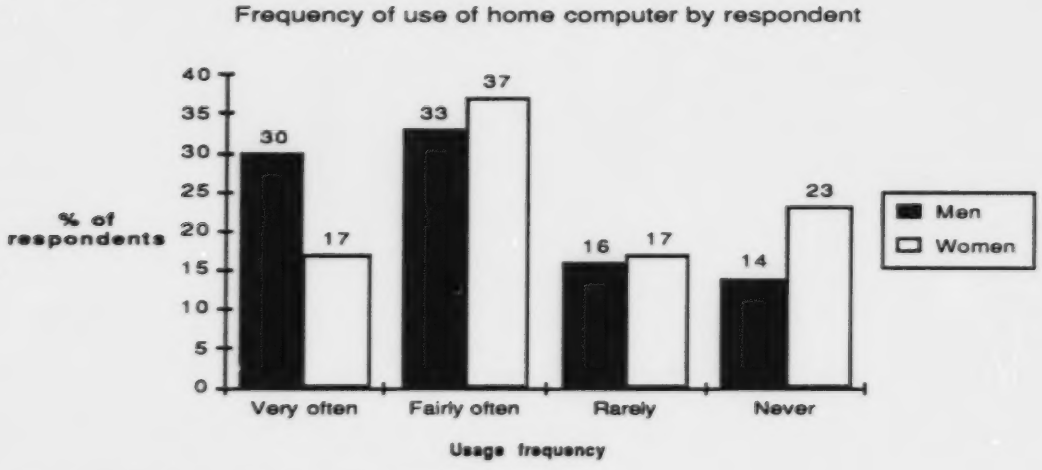
3. COMPUTERS AT HOME

3.1 Portrait of the home user

Our study shows that there were computers in 13% of Canadian homes in 1987. This figure is higher for Anglophones (15%) than Francophones (10%), and in Ontario (16%) and the western provinces (15%). The proportion also tends to increase with schooling (14 or more years: 22%), income ($35,000 and over: 22%) and professional status (managers and professionals: 29%). These results correspond to the general trends we have already seen concerning the use of computers at work (see Section 1) in relation to computer know-how and consumer buying power.

The frequency of use of home computers (Figure 12) varies widely, however: 24% say that they use their computers "very often," and 35% "fairly often." At the other end of the scale, a total of 34% of those questioned say that they use their home computers "rarely" or "never." High frequency of use ("very often") is more common among men (30%, as opposed to 17% of women), among Francophones (28%, compared with 23% among Anglophones) and in the Atlantic provinces (41%). The frequency of use increases with schooling (14 or more years: 29%) and depends on professional status (managers and professionals: 37%). It does not appear to drop with age, however.

Figure 12



Source: CROP-3SC. Op. cit. Question 64c.

More than four out of ten people who use microcomputers were mainly induced to use them by personal interest (43%). This reason is particularly common among men (47%, compared with 39% of women), in the 25-34 age group (60%), and among Francophones (53%, as opposed to 41% of Anglophones). Quebecers (47%) and Westerners (42%) also use computers mainly because of personal interest, as do technicians (55%), office, sales and services employees (52%), and people at home full-time (74%).

People who were induced to use microcomputers mainly because of studies, that is 20% of home users, fall mostly into the 15-24 age group (37%), but women are also well represented (24%, compared with 16% of men), while there are more Anglophones (21%, compared with 12% of Francophones) and Ontarians (26%) in this group.

For 18% of home computer users, work was the main reason. This result appears to be more common among men (20%, as opposed to 15% of women), union members (25%, compared with 17% of non-union members), managers and professionals (36%), in the Atlantic (26%) and Quebec (24%). In addition, this proportion increases with age.

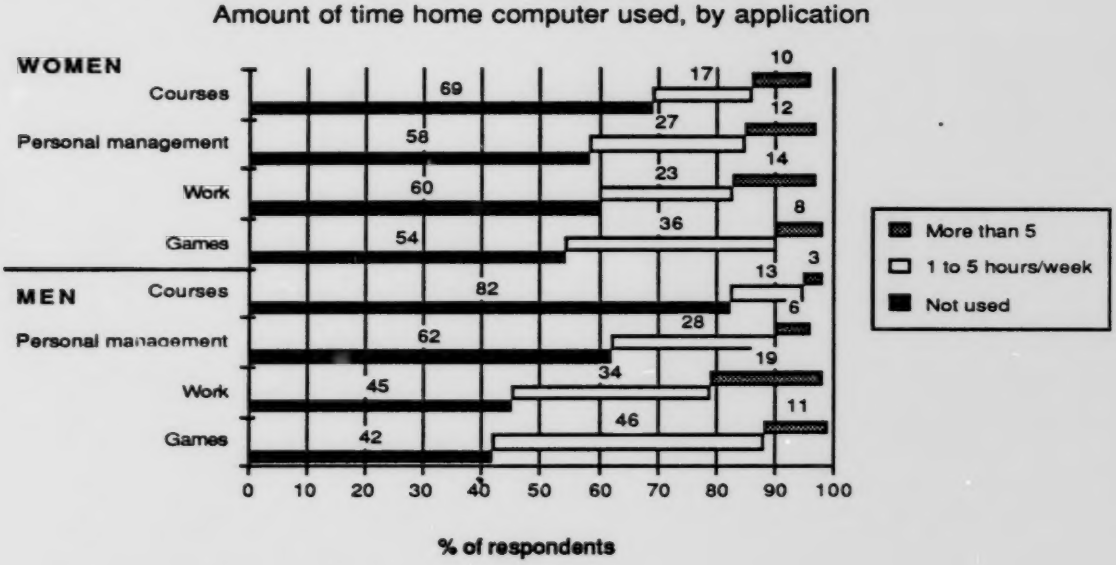
Another group of respondents cited the influence of friends and relatives as the main reason (16%) for their use of computers. This was more true for people in the 35-59 age group (29%), Anglophones (18%, as compared with 6% among Francophones), and individuals in the $35,000 and over income bracket (20%), but also among unemployed job-seekers (25%), pensioners (26%) and people from the Atlantic Region (22%).

3.2 Use of computers at home

Data on the frequency of use of home computers, broken down by the various applications, show that almost half (46%) of the people who own a home computer use it for their work. In that group, 29% use it from one to five hours a week (Figure 13), 9% from six to ten hours a week, and 8% more than eleven hours a week. In particular, people with more schooling (14 or more years: 60%), managers and professionals (79%), men (53%, compared with 37% of women)

and those in the 45-59 age group (69%) are likely to use their home computers for this purpose.

Figure 13



Source: CROP-3SC. Op. cit. Question 66c.

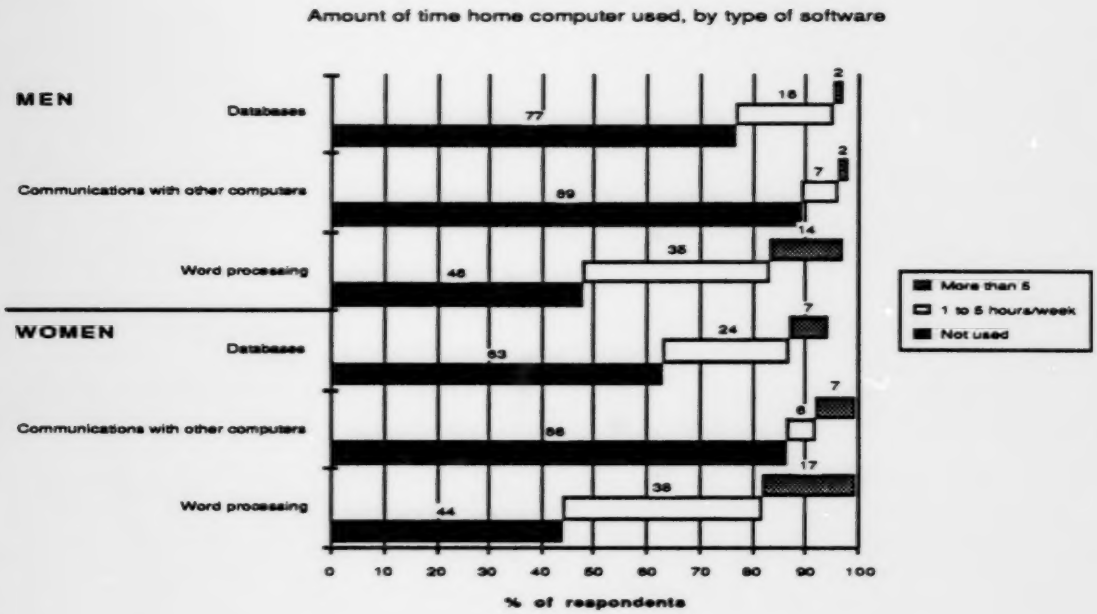
Many people (51%) use their microcomputers to play games, but not very frequently; 42% of them do so only from one to five hours a week. This application is more common among men (57%, compared with 44% of women), decreases with age (67% of people in the 15-24 age group use computers to play games, as opposed to 41% in the 35-44 age group and 26% of those aged 45 to 59) and is more frequent among the lowest job categories (61% of laborers as opposed to 36% of professionals and managers).

On the other hand, 37% of Canadians who own a microcomputer use it for personal management (bookkeeping, filing recipes and so on); of them, 28% use it from one to five hours a week. The following subgroups have a greater number of intensive users (six to ten hours/week): the 25-34 age group (12%), people in the $25,000-$35,000 income bracket (16%), Francophones (12%, as compared with 6% of Anglophones), and office, sales and services employees (17%). People from the Atlantic Region (34%) and laborers (21%) are among those who spend less time using their microcomputers for personal management purposes.

Finally, 21% of people with a microcomputer at home use it to take courses, and 15% of them do so from one to five hours a week. This figure increases from east to west. People in the $15,000-$25,000 income bracket and unionized workers tend to use their microcomputers less for this purpose.

An examination of the main types of software used by those surveyed shows that word processing is one of the most common uses: more than half of them (53%) use their computer for this purpose, including 37% from one to five hours and 11% from six to ten hours a week (Figure 14). The popularity of this application varies only a little with age, but appears much more common among individuals with more schooling or higher incomes, among those who are at home full-time (61%) and among managers and professionals (70%). Francophones spend much more time on this activity than Anglophones (24% of Francophones spend six to ten hours a week on word processing, compared to 8% of Anglophones). Quebec is the leader, in fact, in the proportion of computer owners who use them for word processing (60%).

Figure 14

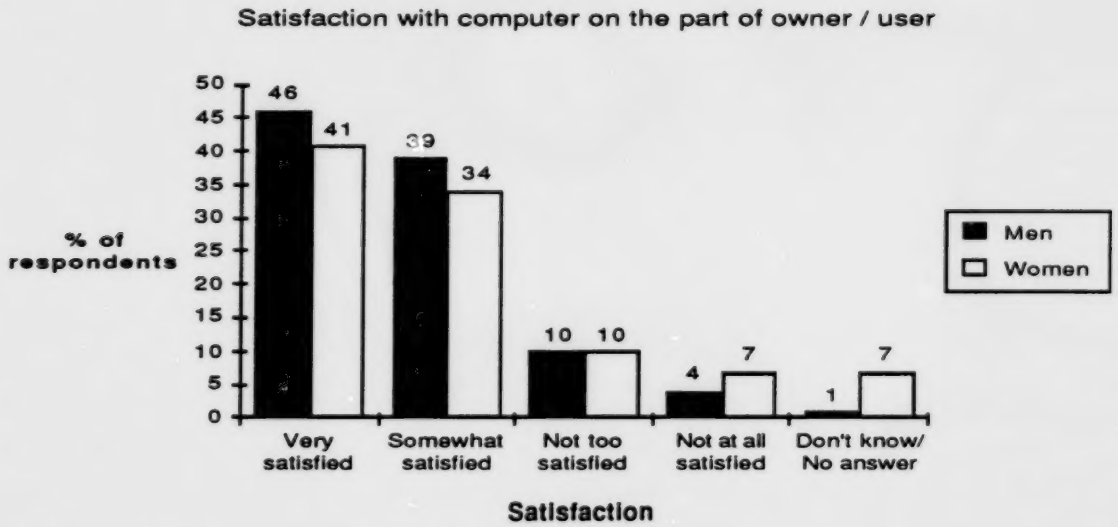


Source: CROP-3SC. Op. cit. Question 66c.

It can also be seen that about one user out of four uses his or her microcomputer to consult databases (26%); however, 81% of these users do so only for one to five hours a week. On the other hand, very few people (9%) use their microcomputers to communicate with other computers. Of this group, 6% do so from one to five hours a week, and 12% from six to ten hours a week. This application is more common among managers and professionals (15%) and Westerners (15%). We can surmise, however, that the consultation of data banks will increase considerably in coming years as systems such as ALEX, MINITEL and other competitors come onto the market.

If we look more closely at users' levels of satisfaction with this tool, it can be seen that the great majority (81%) of people who own a microcomputer at home say that they are generally satisfied ("very satisfied": 44%; "somewhat satisfied": 37%) (Figure 15). The proportion of those who claim to be "very satisfied" is higher among people in the 35-44 age group (52%), those whose income is $35,000 and over (53%) and in the Atlantic (62%). It is lower, however, among people in the 25-34 age group, those whose income falls into the $25,000-$35,000 bracket and among technicians.

Figure 15



Source: CROP-3SC. Op. cit. Question 67c.

We should note, in passing, that the overall data on satisfaction do not point to any sign of fascination or tremendous enthusiasm regarding home computers among those people who have them. In fact, almost 15% say that they are "not too satisfied" or "not at all satisfied," while only 44% claim unqualified satisfaction.

3.3 Other new technologies

It is also interesting to compare the use of new technologies by people with home computers and by people without home computers. In fact, previous analysis has already shown that computer users generally belong to households that are more apt to have the latest electronic technologies, such as VCRs (68%, as opposed to 46%), microwave ovens (64%, compared with 46%) and remote-control devices for televisions (70%, compared with 60%).

A closer look at the list of appliances owned by households with microcomputers clearly shows that such families are the greatest consumers of VCRs, microwave ovens and remote control devices. They also use them more often. Families that have adopted a computer are generally those that were particularly predisposed to purchasing the most modern electronic appliances and making good use of them. This characteristic sets them well apart from families who have had no contact with computers, but also from families in which a member uses a computer only outside the home (households in which electronic appliances are nevertheless fairly common).

The CROP survey also shows that approximately four out of ten people use automatic bank tellers either regularly (25%) or occasionally (17%). Regular users are more likely to be found in the 25-34 age group (39%), and the propensity for using such machines increases with schooling (14 or more years: 41%) and income (less than $15,000: 15%; $35,000 and over: 36%). Frequency of use is higher among managers and professionals (45%), technicians (40%), Anglophones (27%, compared with 20% of Francophones) and union members (31%, compared with 24% for non-union members). This frequency also increases from east (Atlantic: 15%, and Quebec: 22%) to west (Ontario: 26%, and western provinces: 28%).

CONCLUSION

One of the main conclusions to be drawn from this study is that although the use of computers is apparently still limited to a certain segment of the population (the 15-34 age group, people with more schooling, managers, professionals and technicians), the increasing proliferation of computers has helped to de-mystify this technology for a growing number of people, and to transform its social image to such an extent that people's view of computers and human-machine relations is generally positive. We could perhaps even suggest that this increasing proliferation of computers in our world has served to make them less "special," so that users now have a more realistic understanding of their capabilities.

We should stress that the spread of computers has been progressive, occurring first in the workplace and then in the home. At work, computers have been introduced more slowly than expected, since only marginal use is made of applications such as working at home with a computer link to the office and telephone – and video-conferencing. The same applies at home, where teleshopping and other services will gain in popularity only once the Alex, MINITEL and other competitors' systems arrive on the market.

The new information technologies have made constant, albeit slow, progress. This advance is gradually drawing the post-industrial society into a "new age": the information society. Remember that the post-war period was marked by economic development and social innovation that produced major changes in lifestyles. At work, the number of jobs in the primary and secondary sectors fell steadily, while employment in the service sector grew considerably, particularly as women entered the labor market in greater numbers. In private life, high levels of consumption (automobiles, televisions, washing machines, etc.) transformed lifestyles and the leisure industry appeared.

In the information society, computer technology in turn becomes the pivotal point of a wide-ranging process of innovation in the economic infrastructure and work organization, and we are witnessing the rise of an information sector characterized by information-based industries and occupations. These activities flow from a whole range of new products, associated with new ways of creating, distributing and consuming information, and new leisure pursuits. Furthermore, the perception

of the computer as a "tool" at work can doubtless be associated with the "familiarity" in the home, given the great popularity of new electronic consumer goods.

In fact, there is increasing interest in the use of telematics aimed at the general public, to create a demand for new services and leisure pursuits. We can expect that the "home of the future" will experience an impact as great as the advent of television, and that the computerization of households will considerably alter the socio-cultural environment of the population as a whole.

There is one obstacle, however, in the path of the massive spread of telematics: the gap between the rapid development of computer hardware and the slow development of information products suited to the public's needs. In addition, the penetration of new technology into households cannot be as fast, owing to the high costs of such new goods.

Consequently, many people have raised the issue of equal access to new telecommunications goods and services for the public. This equality, it should be pointed out, is primarily related to people's ability to afford access to a wide range of communication tools for households (leisure, cultural and social activities). In this context, will an individuals financial capacity determine their ability to gain access to and use technology?

With the proliferation of applications, computers in daily life are becoming not only a consumer good, but also a new identification system at work and in private life. The individual's identity may be transformed both by his or her use of computer technology and his or her access to universal and serialized information.

Once again, we are confronted with ethical questions, that is to what extent the potential and constraints of computer technology will determine the individual's intellectual and cultural development and the social, political and economic development of society.

APPENDIX

Methodology of the survey

1. Data collection questionnaire

CROP survey 3SC was conducted using two questionnaires and home interviews; one of the questionnaires was used to obtain answers to clients' questions (since this was an omnibus survey, that is a general survey done for a number of clients) and specific research data for CROP; the other, self-administered, measured the respondents' socio-cultural profile. When the interview was completed, the interviewer left a booklet with the respondent for him or her to identify his or her socio-cultural profile, and came back to pick up the booklet some days later. The two questionnaires were then merged by CROP, using a computer program.

2. Sampling and validity

A sample of 2,502[1] Canadian men and women aged 15 and over were interviewed at home. This sample is representative of the Canadian population aged 15 and over and of its major regions, but excluded institutionalized persons (army camps, prisons, hospitals, etc.), the Northwest Territories and the Yukon. The interviews were held between March 27 and April 27, 1987.

The sampling model comprised five probability steps: stratification by regions,[2] stratification by city size, and selection of localities, census tracts and blocks. The selection of households was done by picking one household in a block. Strict quotas applied for age groups, sex and the number of working women, so as to ensure that each group would be represented in the proper proportion in the sample.

The stratification of the sample into four regions and four city sizes increased the accuracy of the results for key sub-groups such as smaller regions.

Finally, we should stress that 10% of each interviewer's work was verified by the field section of CROP, to ensure that the interviews had been fully completed and were conducted courteously.

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1. This sample comprises 1,007 people in Quebec and 1,495 people elsewhere in Canada.
2. The sampling model used the following regions: the Maritimes, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Colombia.

The 2,502 questionnaires completed were checked and coded and the information transferred to diskette for compilation. The data for each region, each city size and each age group were weighted by computer in proportion to the population, so that the results would be truly representative of the Canadian public as a whole.